

**WHAT IS CLAIMED IS:**

1. A transmitter in a base station, comprising:

5 a pilot gain controller for generating a first gain value and a second gain value according to a current transmission power and a remaining transmission power of the base station;

a first multiplier for receiving pilot bits, multiplying the pilot bits by the first gain value, and generating a first control signal, and thereby controlling the transmission power level of the pilot bits ;

10 a second multiplier for receiving the pilot bits, multiplying the pilot bits by the second gain value, and generating a second control signal, and thereby controlling the transmission power level of the pilot bits;

a first spreader for generating a first pilot signal by spreading the first control signal with a first orthogonal code;

15 a second spreader for generating a second pilot signal by spreading the second control signal with a second orthogonal code ; and

an adder for adding the first pilot signal to the second pilot signal.

2. The transmitter of claim 1, wherein the first pilot signals and second pilot  
20 signals are transmitted continuously in time.

3. The transmitter of claim 1, wherein the first pilot signals and second pilot signals are transmitted periodically in time.

4. The transmitter of claim 1, wherein a ratio of the transmission power of the second pilot signal to the transmission power of the first pilot signal is the utilizing current transmission power.

5. A transmitter in a base station, comprising:

a pilot gain controller for generating a first gain value and a second gain value according to a current transmission power and a remaining transmission power of the base station;

a first pilot channel generator for receiving pilot bits and generating a first pilot channel signal by controlling the gain of the pilot bits with the first gain value and spreading the gain-controlled signal with a first orthogonal code;

a second pilot channel generator for receiving the pilot bits and generating a second pilot channel signal by controlling the gain of the pilot bits with the second gain value and spreading the gain-controlled signal with a second orthogonal code;

an adder for adding the first and second pilot channel signals; and

a channel transmitter for PN-spreading the output signal of the adder, converting the frequency of the PN-spread signal, and transmitting the converted signal.

6. A receiver in a mobile station for receiving from a base station a first pilot signal and a second pilot signal representative of a current transmission power and a remaining transmission power of the base station, comprising:

a first receiver for despreading the first pilot signal received on a forward pilot channel with a first orthogonal code and measuring the reception power of the despread signal;

a second receiver for despreading the second pilot signal received on the forward pilot channel with a second orthogonal code and measuring the reception power of the despread signal; and

a service load estimator for estimating the current transmission power and the remaining transmission power of the base station by determining a ratio of the reception power of the second pilot signal to the reception power of the first pilot signal.

7. The receiver of claim 6, wherein the first pilot signals and second pilot signals are received continuously in time.

8. The receiver of claim 6, wherein the first and second pilot signals are received periodically in time.

9. The receiver of claim 6, wherein the service load estimator estimates the remaining transmission power by subtracting the estimated current transmission power, which is obtained by calculating the ratio of the reception powers of the second pilot

signal to the first pilot signal, from the overall transmission power of the base station.

10. The receiver of claim 9, further comprising a channel transmitter for mapping the estimated remaining transmission power to the reception power of a predetermined service that the mobile station is to receive from the base station based on the overall reception power of the forward pilot channel, and reporting the mapped reception power for the predetermined service to a network.

11. A receiver in a mobile station for receiving from a base station a first pilot signal and a second pilot signal representative of a current transmission power and a remaining transmission power of a base station, comprising:

a first multiplier for despreading a pilot signal received on a forward pilot channel with a first orthogonal code and outputting the first pilot signal;

a second multiplier for despreading the pilot signal received on the forward pilot channel with a second orthogonal code and outputting the second pilot signal;

a first power estimator for estimating reception power of the first pilot signal received from the first multiplier;

a second power estimator for estimating reception power of the second pilot signal received from the second multiplier; and

a service load estimator for estimating the current transmission power and the remaining transmission power of the base station by determining a ratio of the reception power of the second pilot signal to the reception power of the first pilot signal.

12. A method of reporting current transmission power to a mobile station by a base station, comprising the steps of:

generating a first gain value and a second gain value according to a current transmission power and a remaining transmission power;

receiving pilot bits;

generating a first pilot signal by controlling the transmission power level of the pilot bits with the first gain value and spreading the gain-controlled signal with a first orthogonal code, and transmitting the first pilot signal; and

generating a second pilot signal by controlling the transmission power level of the pilot bits with the second gain value and spreading the gain-controlled signal with a second orthogonal code, and transmitting the second pilot signal.

13. The method of claim 12, wherein the first pilot signals and second pilot signals are transmitted continuously in time.

14. The method of claim 12, wherein the first pilot signals and second pilot signals are transmitted periodically in time.

15. The method of claim 12, wherein a ratio of the transmission power of the second pilot signal to the transmission power of the first pilot signal is the current transmission power.

16. A method of receiving from a base station a first pilot signal and a second pilot signal in association with a current transmission power and a remaining transmission power of a base station by a mobile station, comprising the steps of:

5 receiving a pilot signal on a forward pilot channel, despread the pilot signal with a first orthogonal code, and outputting the first pilot signal;

despread the pilot signal with a second orthogonal code and outputting the second pilot signal;

estimating the reception powers of the first pilot signal and the second pilot signal; and

estimating the current transmission power and the remaining transmission power of the base station by determining a ratio of the reception power of the second pilot signal to the reception power of the first pilot signal.

15 17. The method of claim 16, further comprising the step of mapping the estimated remaining transmission power to the reception power of a predetermined service that the mobile station is to receive from the base station based on the overall reception power of the forward pilot channel and reporting the mapped reception power for the predetermined service to a network.

18. The method of claim 17, further comprising the step of reporting a data rate corresponding to the reception power of a data service if the predetermined service is the data service.

5 19. The method of claim 17, wherein the first pilot signals and second pilot signals are received continuously in time.

20. The method of claim 17, wherein the first pilot signals and second pilot signals are received periodically in time.

21. A method of implementing a handoff in a mobile station that receives a first pilot signal and a second pilot signal representative of a current transmission power and a remaining transmission power of a base station, comprising the steps of:

receiving a first pilot signal and a second pilot signal from each base station that belongs to an active set of the mobile station;

measuring the reception powers of the first pilot signal and the second pilot signal received from each base station;

estimating the current transmission power of each base station by calculating a ratio of the reception power of the second pilot signal to the reception power of the first pilot signal;

estimating the remaining transmission power of each base station based on the estimated current transmission power and using the estimated remaining transmission

power of each base station as a reception power of a predetermined service allocable by the base station;

selecting the strongest reception power and a base station corresponding to the strongest reception power; and

5 reporting the selected reception power and the selected base station to a network.

22. A method of implementing a handoff in a mobile station that receives a first pilot signal and a second pilot signal representative of a current transmission power used for a voice service and the remaining transmission power of a base station, comprising the steps of:

receiving a first pilot signal and a second pilot signal from each base station that belongs to an active set of the mobile station;

measuring the reception power of the first pilot signal and the second pilot signal received from each base station;

15 estimating the load of the voice service provided by each base station by calculating a ratio of the reception power of the second pilot signal to the reception power of the first pilot signal;

estimating the remaining transmission power of each base station based on the estimated voice service load and using the estimated remaining transmission power of each base station as a reception power of a data service allocable by the base station; and

20 selecting the strongest reception power and a base station corresponding to the strongest reception power and reporting the selected reception power and the selected



base station to a network.

FOR RELEASE